10
20
MECHANICAL CONTROLLER SECTION
26
ROM
22
HEAD UNIT
23
PAPER FEED UNIT
25
RAM
24
MECHANICAL CONTROLLER CPU
21
MOTOR
30
HIGH-SPEED SERIAL I/O
40
CONTROLLER SECTION
42
RAM
41
CONTROLLER CPU
PC CARD SLOT
47
AUDIO DECODER IC
43
ROM
45
LCD/LED
44
INPUT SWITCH UNIT
46

FIG. 1

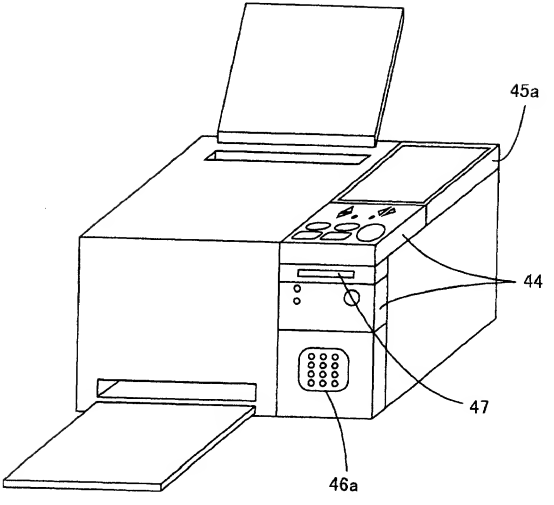

FIG. 2

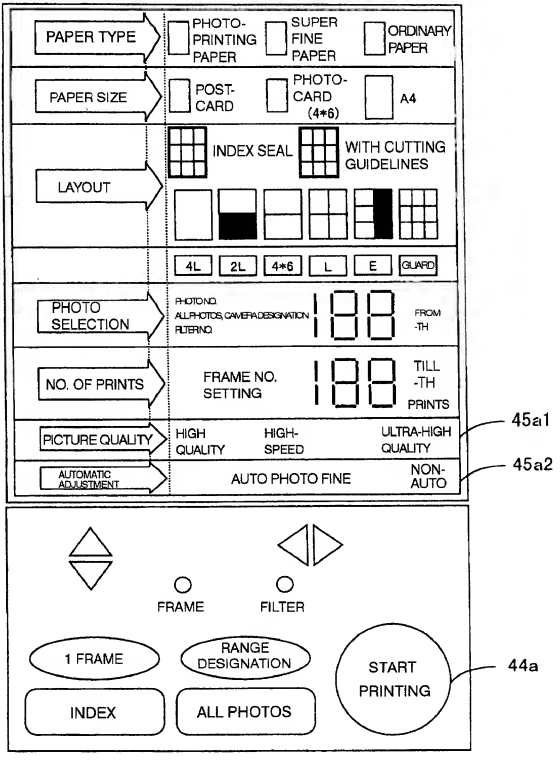
PAPER TYPE
PHOTO-PRINTING PAPER
SUPER FINE PAPER
ORDINARY PAPER
PAPER SIZE
POST-CARD
PHOTO-CARD (4*6)
A4
LAYOUT
INDEX SEAL
WITH CUTTING GUIDELINES
4L
2L
4*6
L
E
GUARD
PHOTO SELECTION
PHOTO NO.
ALL PHOTOS, CAMERA DESIGNATION
FILTER NO.
FROM -TH
NO. OF PRINTS
FRAME NO. SETTING
TILL -TH PRINTS
PICTURE QUALITY
HIGH QUALITY
HIGH-SPEED
ULTRA-HIGH QUALITY
AUTOMATIC ADJUSTMENT
AUTO PHOTO FINE
NON-AUTO
45a1
45a2
FRAME
FILTER
1 FRAME
RANGE DESIGNATION
START PRINTING
INDEX
ALL PHOTOS
44a

FIG. 3

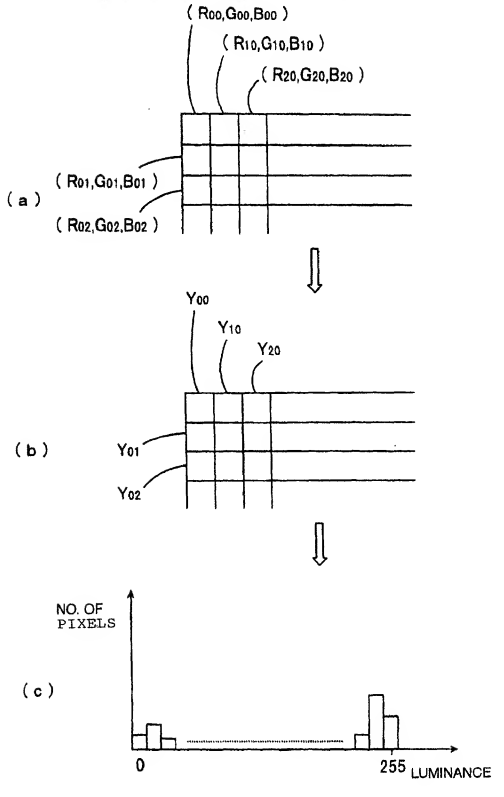
(R00,G00,B00)
(R10,G10,B10)
(R20,G20,B20)
(a)
(R01,G01,B01)
(R02,G02,B02)
Y00
Y10
Y20
(b)
Y01
Y02
NO. OF PIXELS
(c)
0
255
LUMINANCE

FIG. 4

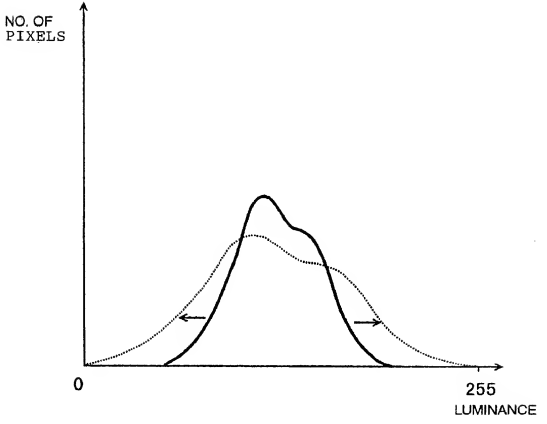

FIG. 5

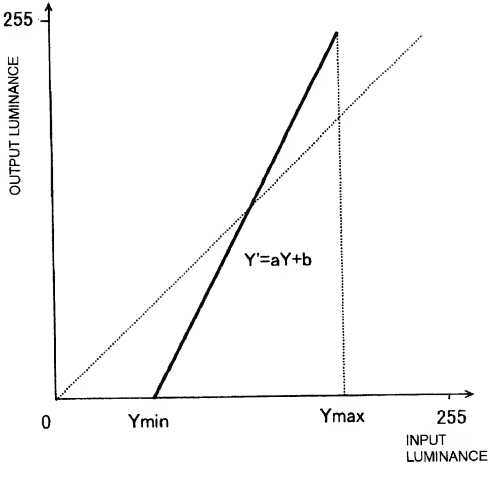

FIG. 6

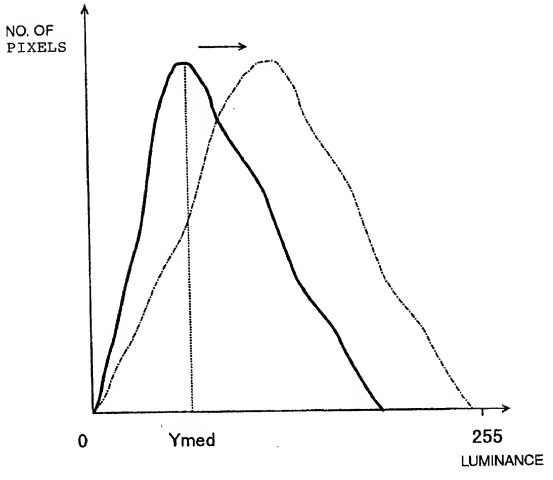

FIG. 7

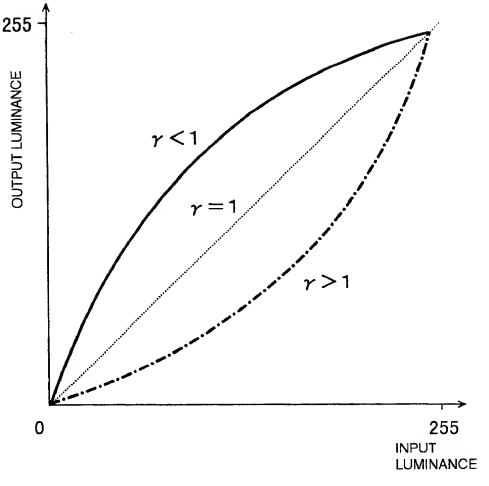
255
OUTPUT LUMINANCE
$\gamma < 1$
$\gamma = 1$
$\gamma > 1$
0
255
INPUT
LUMINANCE

FIG. 8

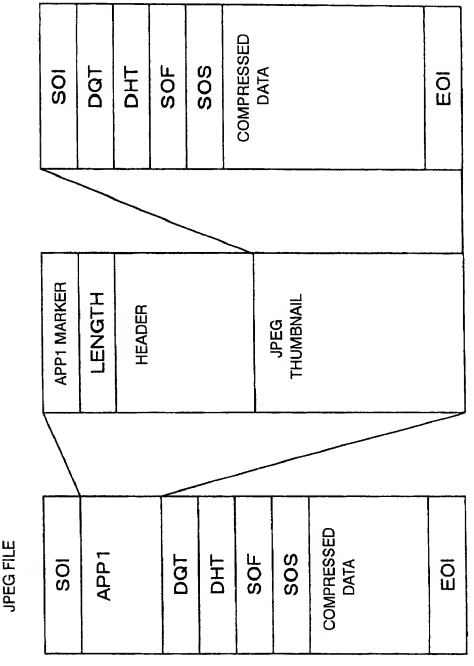
JPEG FILE
SOI
APP1
DQT
DHT
SOF
SOS
COMPRESSED DATA
EOI
APP1 MARKER
LENGTH
HEADER
JPEG THUMBNAIL
SOI
DQT
DHT
SOF
SOS
COMPRESSED DATA
EOI

FIG. 9

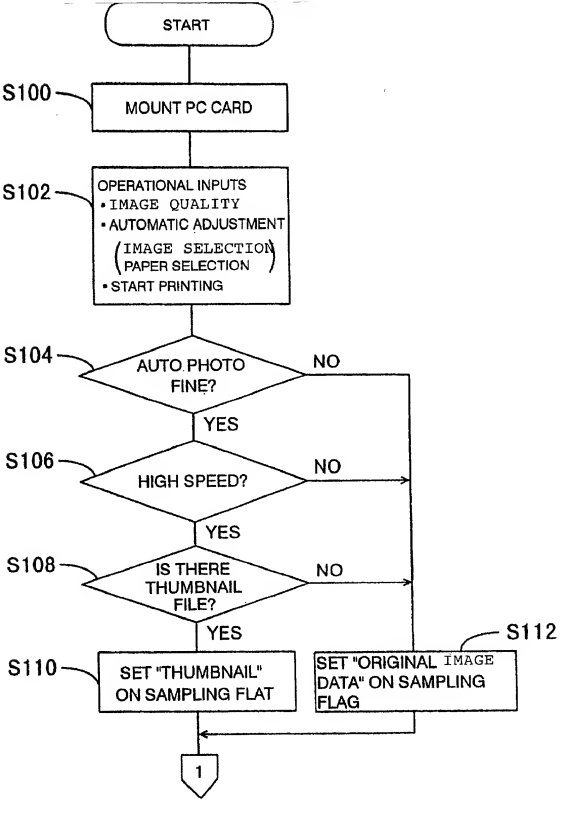
START
S100
MOUNT PC CARD
S102
OPERATIONAL INPUTS
• IMAGE QUALITY
• AUTOMATIC ADJUSTMENT
(IMAGE SELECTION
PAPER SELECTION)
• START PRINTING
S104
AUTO PHOTO FINE?
NO
YES
S106
HIGH SPEED?
NO
YES
S108
IS THERE THUMBNAIL FILE?
NO
YES
S110
SET "THUMBNAIL" ON SAMPLING FLAT
S112
SET "ORIGINAL IMAGE DATA" ON SAMPLING FLAG
1

FIG. 10

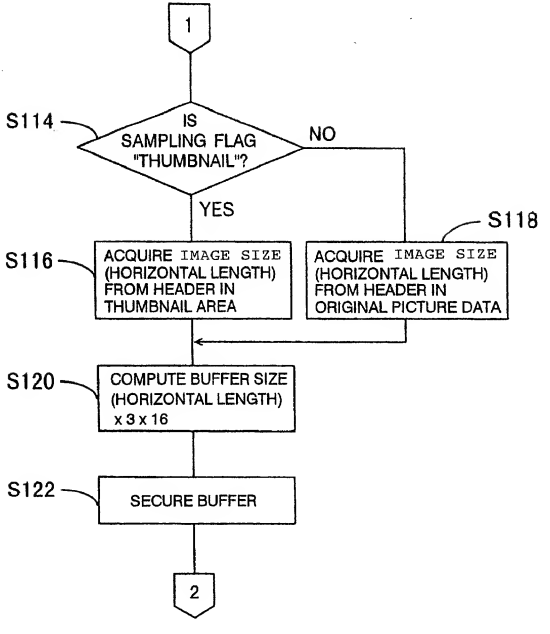
1
S114
IS SAMPLING FLAG "THUMBNAIL"?
NO
YES
S116
ACQUIRE IMAGE SIZE (HORIZONTAL LENGTH) FROM HEADER IN THUMBNAIL AREA
S118
ACQUIRE IMAGE SIZE (HORIZONTAL LENGTH) FROM HEADER IN ORIGINAL PICTURE DATA
S120
COMPUTE BUFFER SIZE (HORIZONTAL LENGTH) x 3 x 16
S122
SECURE BUFFER
2

FIG. 11

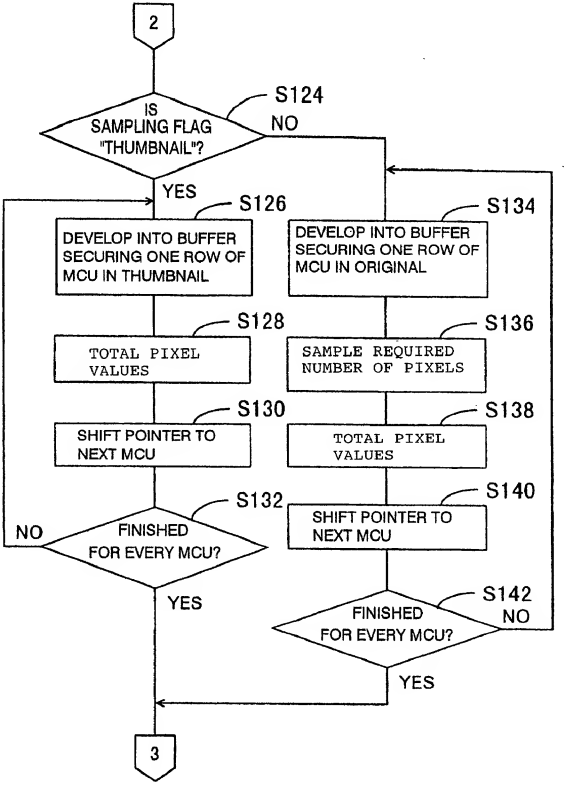
2
IS SAMPLING FLAG "THUMBNAIL"?
S124
NO
YES
S126
DEVELOP INTO BUFFER SECURING ONE ROW OF MCU IN THUMBNAIL
S128
TOTAL PIXEL VALUES
S130
SHIFT POINTER TO NEXT MCU
S132
NO
FINISHED FOR EVERY MCU?
YES
S134
DEVELOP INTO BUFFER SECURING ONE ROW OF MCU IN ORIGINAL
S136
SAMPLE REQUIRED NUMBER OF PIXELS
S138
TOTAL PIXEL VALUES
S140
SHIFT POINTER TO NEXT MCU
S142
FINISHED FOR EVERY MCU?
NO
YES
3

FIG. 12

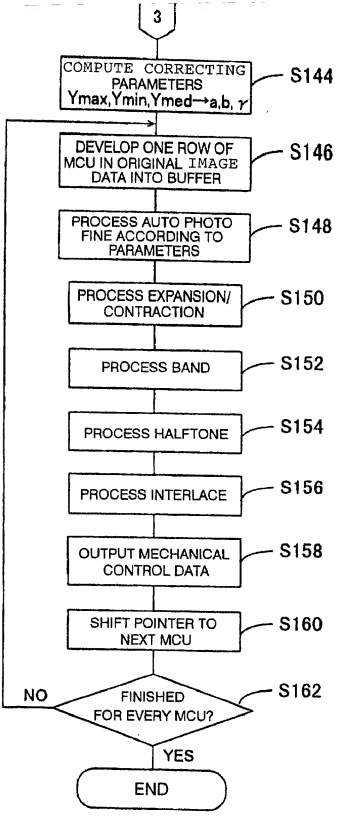
3
COMPUTE CORRECTING PARAMETERS Ymax,Ymin,Ymed→a,b, γ
S144
DEVELOP ONE ROW OF MCU IN ORIGINAL IMAGE DATA INTO BUFFER
S146
PROCESS AUTO PHOTO FINE ACCORDING TO PARAMETERS
S148
PROCESS EXPANSION/ CONTRACTION
S150
PROCESS BAND
S152
PROCESS HALFTONE
S154
PROCESS INTERLACE
S156
OUTPUT MECHANICAL CONTROL DATA
S158
SHIFT POINTER TO NEXT MCU
S160
NO
FINISHED FOR EVERY MCU?
S162
YES
END

FIG. 13

S110,S112
TOTAL SELECTION
PRECISION
HIGH
LOW
THUMBNAIL
PRESENT
ABSENT
SAMPLING
THUMBNAIL
SAMPLING
S108
JUDGMENT OF THUMBNAIL PRESSENCE OR ABSENCE
and
PRECISION SELECTION
S104,S106
THUMBNAIL TOTAL
or
SAMPLING TOTAL
S126~S132
S134~S142
FEATURE AMOUNT EXTRACTION
FEATURE AMOUNT
S126~S132, S134~S142
PARAMETER COMPUTATION
S144
CORRECTING PARAMETERS
IMAGE CORRECTION
S148
PRINTING
S150~S158
MEMORY CARD
THUMBNAIL DATA
IMAGE DATA
47
CONTROLLER CPU
41
PRECISION SELECTION (INPUT SWITCH UNIT)
44
BUFFER (RAM)
42
MECHANICAL CONTROLLER SECTION
20

FIG. 14